



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,540	11/19/2003	John West	101867.56513US	5587
23911 7590 10/10/2007 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			EXAMINER CARIASO, ALAN B	
			ART UNIT 2885	PAPER NUMBER
			MAIL DATE 10/10/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/715,540

Applicant(s)

WEST ET AL.

Examiner

Alan Cariaso

Art Unit

2885

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,4,19-32 and 39-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,4 and 39-43 is/are allowed.
- 6) ☒ Claim(s) 19-32 and 44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 2, 2007 has been entered.

Response to Amendment

2. Applicant's amendment filed April 26, 2007 is entered. Claims 2, 4, 19-32 and 39-44 are pending. Claim 2 is amended. Claims 39-44 are newly submitted. Claims 1, 3, 5-18 and 33-38 are cancelled.

Claim Objections

3. Claim 44 is objected to because of the following informalities: Claim 44, line 3, the phrase "a light source selected from the group consisting of is LED, tungsten, halogen" is grammatically incorrect. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 19-32 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

6. In regards to claims 19 and 22, the commonly claimed "*and wherein the light guide further comprises a straight wall section immediately distal to the reflecting means*" does not have clear support from the written specification. The figures 3 and 6-9 show "straight" cylindrical walls (at least straight in the longitudinal section) defined by a substantial section of the light guide that is not specified to be limited to being distal or immediately distal to the reflector, as claimed in claims 19 and 22. The light guide appears also "straight", proximal to the reflector. Claims 20, 21 and 23-32 depend on claims 19 and 22.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 44 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 44, the phrase "wherein said lens, reflector and light guide are a one piece injection molded acrylic, glass or plastic part" is indefinite as lacking distinction between the lens and reflector with the light guide also comprising the lens and reflector.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language

11. Claims 19-24, 29-31 and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by BIANCHETTI et al (US 6,857,873 B2).

12. As best understood of claims 19-24 and 29-31, BIANCHETTI discloses a light guide (optical element 40) for use in a dental light curing device (col.2, line 52 to col.3, line 2), the light guide (40) comprising: a proximal end (seat 41) and distal end (48), wherein the proximal end (41) is designed to receive light from a light source (LED 30) and wherein the proximal end comprises: a reflecting means (43), a refracting means (42), wherein the reflecting means (43) is concave (fig.3) to the light source (30) and reflects light (col.5, lines 26-29) from the light source (30) towards the distal end (48) of the light guide (40), and wherein the reflecting means (43) and the refracting means (42) are constructed of single continuous homogeneous material (col.4, lines 56-63), and wherein the light from the light source (30) travels from the proximal end (41) to the distal end (48) without passing through any substantially air spaces (figs.4A,4B), *and wherein the light guide (40) further comprises a straight wall section (cylindrical section 46 is straight longitudinal section-wise) immediately distal to the reflecting means (43);* wherein the distal end (48) is connected to a fused fiber optic image conduit (50);

wherein the reflecting means (43) and the refracting means (42) are constructed of acrylic, plastic or glass (col.4, lines 56-57); wherein the light source (30) is selected from a group consisting of at least of LED (col.4, lines 51-55); wherein the light source (30) is a single LED (col.4, line 43) inherently consisting of die or emitter; wherein the light source (30) comprises a domed lens cover (fig.3).

13. In regards to claim 44, BIANCHETTI discloses an apparatus for providing light for photo-initiation of light curing resins, comprising, a light source (30) selected from the group consisting of at least an LED (col.4, lines 51-55), and a light guide (40) for transmitting light from said light source (30), said light guide (40) comprising an entrance area (41), a lens (42), at least one reflector (43), a light pipe (45, 46) and an exit area (48), wherein said lens, reflector and light guide are a one piece acrylic, glass or plastic part (col.4, lines 56-63).

14. Regarding recited "injection molded" of claim 44, please note that the method of forming the device is not germane to the issue of patentability of the device itself. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Therefore, the injection molded (i.e. method) limitation has not been given patentable weight.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 25-28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over BIANCHETTI et al (US 6,857,873 B2) in view of KOVAC et al (US 6,200,134 B1).

17. Claims 25-28 and 32 recite the light source being a multiple LED and not including a domed lens cover, not disclosed by BIANCHETTI. KOVAC teaches a dental curing device having an LED array of dies (43 in fig. 2, 60 in fig.4) and without any domed lens cover (figs.2 & 4) in contrast to domed covered and much fewer LEDs (30-fig.1) for the purpose of having increased density of light emitters within a compact space in directing light of adequate or increased curing power into the input (66) of the light pipe (67) toward the dental area to be cured, while maintaining relative adequate cooling (col.7, lines 29-67 and col.8, lines 31-34).

18. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the dental curing device of BIANCHETTI et al to include the type of array of dome-less light emitting dies as taught by KOVAC et al in order to increase light intensity with a greater number and density of light emitters within the desired compactness of the device, while provide adequate or increased curing power output from the light guide, and maintain adequate cooling from the dies' convective exposure.

Allowable Subject Matter

19. Claims 4 and 39-43 are allowed. Reason statement is as stated in prior Office Action of August 29, 2006. Claims 39-43 depend on claim 4 and have adequate support and description under USC 112.

20. Claim 2 is further allowed.

21. The following is a statement of reasons for the indication of allowable subject matter: Claim 2 is allowable because none of the prior art of record suggests a light guide for use in a dental curing device, said light guide comprising an entrance area, a lens, at least one reflector, and a light pipe having an exit area, wherein the lens, at least one reflector, and light pipe are constructed of a single continuous homogeneous material and wherein said light pipe is curved such that the exit area of the light pipe is out of line with the entrance area of said light guide. The prior art shows light pipes with such curved out-of-line exit area relative to the entrance area, however none suggests the light pipe as a single continuous homogeneous material that further includes the lens and reflector.

Response to Arguments

22. In regards to claims 19 and 22, applicant argues that Bianchetti fails to teach a light guide, where immediately distal to the concave reflecting means is a straight wall section. As set forth above, this is not clearly described of what is intended to be nor limitation of a "straight wall section immediately distal to the reflecting means" under USC 112, but possibly derived from the illustration in reference to longitudinal section of

the light guide being straight, at least, immediately distal to the reflecting means. As best understood, this claimed feature is adequately disclosed by Bianchetti as set forth in the above rejection of these claims.

23. In regards to claims 25-28 and 32, applicant argues that there is no motivation to modify the dental light curing device of Bianchetti to include multiple LEDs of Kovac, evidenced by Bianchetti's specific design for a single LED (col.3, lines 3-16) alleging that it teaches away from the claimed invention. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, to modify at least one domed LED to a greater number LED array of dies without domed lens cover is adequately suggested by Kovac (col.7, lines 29-67 and col.8, lines 31-34), namely to increase or provide suitable light intensity of curing power output because of a greater number or density of LEDs within the same space of a few domed LEDs, while without dome lenses also maintains adequate cooling for the greater number of LED array of dies.

Conclusion

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. AZAR et al (US 2001/0024777 A1) show a unitary reflector (15), filter (21,23, fig.3), lens (55, fig.4) and light pipe (22,30,32), wherein the light pipe has an exit area (25) just in line with entrance area (23).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Cariaso whose telephone number is (571) 272-2366. The examiner can normally be reached on 9-5:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alan Cariaso

Application/Control Number: 10/715,540
Art Unit: 2885

Page 10

Primary Examiner
Art Unit 2885

October 1, 2007
AC

A handwritten signature in black ink, consisting of a stylized 'P' followed by a diagonal stroke.